In the Claims:

Please amend the claims as follows:

1. (Original) A method of fluid measurement comprising the steps of:

dividing a fluid or mixed gas and fluid flow between a first and second flow path each made up of one or more components;

causing the fluid to flow preferentially within the first path having one or more components of a relatively high surface to sectional area ratio;

measuring a parameter determined by the fluid in one or more components of the first path having a relatively high surface to sectional area ratio; and

determining the conductivity of the fluid based upon the measured parameter.

2. (Original) The method according to claim I wherein gas is at least partly separated from fluid to aid the preferential flow of fluid to the first flow path.

3. (Currently amended) The method according to ~~claims 1 and 2~~ claim 1 wherein gas is at least partly separated from fluid to aid the preferential flow of fluid to the first flow path by the introduction of a swirling action.

4. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein gas is at least partly separated from fluid to aid the preferential flow of fluid to the first flow path by use of a surge or settling chamber type action.

5. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein fluid to the first flow path is accumulated to sustain a more continuous flow.

6. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein fluid flow from the first flow path is restricted to increase residence time or time for continuous flow.

7. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein fluid volume in the first flow path is minimised to increase residence time or time for continuous flow.

8. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein one or more components of the first flow path is fitted with sensors for measuring parameters determined by the fluid.

9. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein one or more components of the first flow path is fitted with sensors for measuring parameters determined by the fluid used to directly or indirectly represent the conductivity of the fluid.

10. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein one or more components in the second flow path is used to bi-pass fluid or gas and fluid mix not able to be accommodated by the first flow path.

11. (Original) The method according to claim 10 wherein one or more components in the second flow path is used to bi-pass fluid or gas and fluid mix not able to be accommodated by the first flow path with dimensions that minimise pressure or vacuum head loss.

12. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein one or more components in the second flow path is used to bi-pass fluid or gas and fluid mix not able to be accommodated by the first flow path is fitted with sensors to measure a parameter determined by the fluid or gas and fluid mix.

13. (Currently amended) The method according to any ~~one of the preceding claims~~ claim 1 wherein a measurement is made of a parameter determined by the fluid in one or more components of the second flow path having a relatively high surface to sectional area ratio;

14. (Currently amended) The method according to ~~any one of the preceding claims~~ claim 1 wherein the measured parameter in one or more components in the second flow path is used to directly or indirectly determine fluid mass and thereby flow rate and volume.

15. (Original) A fluid measurement apparatus comprising:

a manifold including a first and second flow path for conveying a fluid or mixed gas and fluid flow, causing the fluid to flow preferentially within one or more components in the first flow path having relatively high surface to sectional area ratio;

a sensor provided for the first path for measuring a parameter determined by the fluid; and

a conductivity determining circuit which represents the conductivity of the fluid based upon the parameter measured by the sensor.

16. (Currently amended) The apparatus according to claim 15 ~~wherein~~ using a manifold that employs a method ~~according to claims 1 to 14 is used~~ of fluid measurement comprising the steps of:

dividing a fluid or mixed gas and fluid flow between a first and second flow path each made up of one or more components;

causing the fluid to flow preferentially within the first path having one or more components of a relatively high surface to sectional area ratio;

measuring a parameter determined by the fluid in one or more components of the first path having a relatively high surface to sectional area ratio; and

determining the conductivity of the fluid based upon the measured parameter.

17. (Original) The apparatus according to claim 15 wherein a sensor constructed from electrodes distributed along the length of one or more components in the first path and at least partly surrounding the fluid either on the inside or outside of any containment walls is used.

18. (Currently amended) The apparatus according to ~~claims 15 to 17~~ claim 15 wherein high frequency electric fields are coupled to the sensor electrodes.

19. (Currently amended) The apparatus according to ~~claims 15 to 18~~ claim 15 wherein current or voltage phase or amplitude response is used directly or indirectly to represent conductivity and/or mass and thereby flow rate and volume.

20. (Original) A method for measurement of a parameter of a fluid comprising the steps of:

measuring a parameter determined by a fluid by sensing through a containment wall made of electrically insulating material; and

improving the measurement sensitivity by at least partially canceling the effect of the dielectric properties of the containment wall.

21. (Original) The method according to claim 20 wherein the parameter to be measured is influenced by solutes or solvents that give rise to conductive properties.

22. (Currently amended) The method according to ~~any one of claims 20-21~~ claim 20 where the fluid concerned is constrained to a form with relatively high surface to sectional area ratio within a containment wall made of electrically insulating material.

23. (Currently amended) The method according to ~~any one of claims 20-22~~ claim 20 wherein a sensor is constructed from electrodes distributed along the length of the constrained form at least partly surrounding the fluid outside the containment walls.

24. (Currently amended) The method according to ~~any one of claims 20-23~~ claim 20 wherein a high frequency voltage waveform is coupled to the sensor electrodes.

25. (Currently amended) The method according to ~~any one of claims 20-24~~ wherein a current phase or amplitude response is used to determine a measurement.

26. (Currently amended) The method according to ~~any one of claims 20-25~~ claim 20 wherein the phasor addition of another signal cancels out at least part of the response due to the capacitance effect from the containment wall dielectric.

27. (Currently amended) The method according to ~~any one of claims 20-26~~ claim 20 wherein a phase detector or amplitude detector is used to produce an output used to directly or indirectly represent conductivity and/or mass and thereby flow rate and volume.

28. (Currently amended) The method according to claim 24 [[or 25]] wherein voltage is used in place of current and current is used in place of voltage,

29. (Currently amended) The method according to claim 20[[-28]] wherein the measurement of the parameter of the fluid is used to directly or indirectly represent conductivity and/or mass and thereby flow rate and volume;

30. (Currently amended) The method according to claim 20[[-28]] wherein the measurement of the parameter of the fluid is manipulated with algorithms to filter and/or combine with other measurements and/or qualify by analysing time trends to improved reliability or accuracy of the measurement itself or what it is used to directly or indirectly represent.

31. (Original) An apparatus for measuring a fluid comprising:

a sensor arrangement for measuring a parameter determined by a fluid through containment walls made of an electrically insulating material;

a signal conditioning circuit that converts the measured parameter into an electrical form; and

a signal conditioning circuit that improves the measurement sensitivity by at least partially cancelling the undesirable effect of the dielectric properties of the containment wall.

32. (Currently amended) The apparatus according to claim 31 ~~wherein~~ using a method ~~according to claims 20 to 30 is used~~ for measurement of a parameter of a fluid comprising the steps of:

measuring a parameter determined by a fluid by sensing through a containment wall made of electrically insulating material; and

improving the measurement sensitivity by at least partially cancelling the effect of the dielectric properties of the containment wall.

33. (Currently amended) The apparatus according to ~~any one of claims 32-32~~ claim 31 wherein an electrode coupling device with high common mode impedance is used in order to reduce effects of stray capacitance to the fluid and surrounding environment.

34. (Currently amended) The apparatus according to ~~any one of claims 31-33~~ claim 31 wherein functions are ~~realised~~ realized within single components.

35. (Currently amended) The apparatus according to ~~any one of claims 31-34~~ claim 31 wherein phase or amplitude detection involves converting current or voltage waveforms into square or rectangular waveforms with certain timing relationships.

36. (Original) The apparatus according to claim 35 wherein conversion to square or rectangular waveforms involves a comparator with a feedback loop acting on the duty cycle of the comparator output to adjust the comparator input.

37. (Currently amended) The apparatus according to ~~any one of claims 31-36~~ claim 31 wherein a signal conditioning circuit provides and output used to directly or indirectly represent conductivity and/or mass and thereby flow rate and volume.

38. (Currently amended) The apparatus according to ~~any one of claims 31-36~~ claim 31 wherein outputs from a signal conditioning circuit determine measurements that are acted on by an algorithm to filter and/or combine with other measurements and/or qualify by analysing time trends to improved reliability or accuracy of the measurement itself or what it is used to directly or indirectly represent.

39. (Original) A method for determining dairy stock and plant performance comprising the steps of:

making performance measurements during a normal milking session,

collecting measurements to incrementally develop performance profiles during a normal milking session;

storing performance profiles as a completed set at the end of a normal milking session;

applying a best fit matching of a stored set to the current milking;

providing settings for user or pre-determined standards of performance; and

providing performance assessment for measurements during the current milking session using assessment criteria that are in part determined by stored profiles.

40. (Original) The method according to claim 39 wherein measurements are made automatically during the milking session.

41. (Currently amended) The method according to ~~any one of claims 39-40~~ claim 39 wherein measurements are made for individual cows with or without retaining individual cow identification information.

42. (Currently amended) The method according to ~~any one of claims 39-41~~ claim 39 wherein measurements are made or derived that represent stock performance including milk flow rate, volume, mass, yield and conductivity.

43. (Currently amended) The method according to ~~any one of claims 39-42~~ claim 39 wherein measurements are made or derived that represent plant milking performance including pulsing action, milking time, and air or fluid flow rates or ratios.

44. (Currently amended) The method according to ~~any one of claims 39-43~~ claim 39 wherein measurements are made or derived that represent plant cleaning performance including hot and cold cycles, fluid volume, time and detergent use.

45. (Currently amended) The method according to ~~any one of claims 39-44~~ claim 39 wherein performance profiles include distributions, averages, maximums, minimums for individual cows or parts or all of a herd.

46. (Currently amended) The method according to ~~any one of claims 39-45~~ claim 39 wherein stored performance characteristics for stock can be representative of standards defining a number of cows or a level within the herd.

47. (Currently amended) The method according to ~~any one of claims 39-46~~ claim 39 wherein stored characteristics are matched on the basis of the last diurnal milking period corresponding to the current milking.

48. (Currently amended) The method according to ~~any one of claims 39-47~~ claim 39 wherein performance during the current milking can be categorised as satisfactory or unsatisfactory or represented as a relative value.

49. (Currently amended) The method according to ~~any one of claims 39-48~~ claim 39 wherein measurements result in local annunciation.

50. (Currently amended) The method according to ~~any one of claims 39-49~~ claim 39 wherein measurements are used to determine end of milking or cluster removal for individual cows.

51. (Currently amended) The method according to ~~any one of claims 39-50~~ claim 39 wherein individual cow identification system is incorporated.

52. (Currently amended) The method according to ~~any one of claims 39-51~~ claim 39 wherein remote access is incorporated including access to a farm computer system, industry computer system or the internet.

53. (Original) An apparatus for determining dairy stock and plant performance comprising:

a unit for making measurements during a normal milking session;

a unit for collecting and developing measurement profiles, storing completed sets of profiles, matching stored profiles to the current milking and calculating performance criteria to be compared with measurements during the current milking session from standards of performance;

a unit for annunciation of performance during the current milking session; and

a network for communicating information between units.

54. (Currently amended) The apparatus according to claim 53 ~~wherein~~ using a method ~~in claims 39 to 52 is used~~ for determining dairy stock and plant performance comprising the steps of:

making performance measurements during a normal milking session,

collecting measurements to incrementally develop performance profiles during a normal milking session;

storing performance profiles as a completed set at the end of a normal milking session;

applying a best fit matching of a stored set to the current milking;

providing settings for user or pre-determined standards of performance; and

providing performance assessment for measurements during the current milking session using assessment criteria that are in part determined by stored profiles.

55. (Currently amended) The apparatus according to claim 53 ~~or claim 54~~ wherein measurements are made with a unit at each milking cluster.

56. (Currently amended) The apparatus according to ~~any one of claims 53-55~~ claim 53 wherein measurements are made at each milking cluster in-line with the long milk hose from the milking cluster or the equivalent.

57. (Currently amended) The apparatus according to ~~any one of claims 53-56~~ claim 53 wherein a commercial computer with appropriate adaptations and software or dedicated device with inbuilt computing capability is used for the unit collecting and developing measurements to define and store performance profiles and determining performance standards for the current milking session.

58. (Currently amended) The apparatus according to ~~any one of claims 53-57~~ claim 53 wherein the unit for annunciation is also used to input user selected standards or to announce performance for the current milking session.

59. (Currently amended) The apparatus according to ~~any one of claims 53-58~~ claim 53 wherein some or all of the units perform their functions automatically.

60. (Currently amended) The apparatus according to ~~any one of claims 53-59~~ claim 53 wherein announcement of performance for the current milking session is made with a unit at the milking cluster position as part of the measuring unit or a separate unit.

61. (Currently amended) The apparatus according to ~~any one of claims 53-60~~ claim 53 wherein communication between units is performed using a standard telecommunication network system or a dedicated network including a power line modem.